Draft
RESTORATION PLAN AND ENVIRONMENTAL ASSESSMENT FOR THE TEXACO OIL SPILLS INTO FIDALGO BAY, ANACORTES, WASHINGTON IN 1991 AND 1992

Prepared by:

The *Texaco Oil Spills* Natural Resource Trustees

State of Washington
Department of Fish and Wildlife
Department of Ecology
Department of Natural Resources

Lummi Nation
Nooksack Tribe
Suquamish Tribe
Swinomish Indian Tribal Community

U.S. Department of the Interior
U.S. Fish and Wildlife Service

July, 2003

FACT SHEET

DRAFT RESTORATION PLAN and ENVIRONMENTAL ASSESSMENT for the Texaco Oil Spills Into Fidalgo Bay, Anacortes, WA in 1991 and 1992.

Lead Agency for RP/EA: Washington Department of Fish and Wildlife

Cooperating Agencies: Swinomish Indian Tribal Community
Lummi Nation
Nooksack Indian Tribe
Suquamish Indian Tribe
U.S. Fish and Wildlife Service
Washington Department of Ecology
Washington Department of Natural Resources

Abstract: This Draft Restoration Plan and Environmental Assessment (RP/EA) has been prepared by the Tribal, State, and Federal Natural Resource Trustees to address restoration of natural resources injured by four oil spills from Texaco's Anacortes Refinery facility on February 22, 1991; January 15, 1992; March 9, 1992; and March 25, 1992. The proposed restoration activities of the RP/EA include a combination of protection and enhancement activities to restore the injured natural resources, with particular emphasis on forage fish habitats in the Fidalgo Bay Area.

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Comments: Comments are due no later than **August 25, 2003**
Comments should be sent to the contact person listed above.

Copies: Copies of this Draft Restoration Plan and Environmental Assessment are available by contacting the person listed above.

Date of Release: **July, 2003**

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1.0 INTRODUCTION

1.1 Summary/Purpose

The purpose of this Draft Restoration Plan and Environmental Assessment (RP/EA), prepared by State, Federal, and Tribal Trustees, is to address restoration of natural resources injured by four oil spills from Texaco's Anacortes Refinery facility on February 22, 1991; January 15, 1992; March 9, 1992; and March 25, 1992. The need for this plan is to design, coordinate, and implement projects that restore, rehabilitate, replace and/or acquire the equivalent of the natural resources that were injured from these four oil spill events.

This document has been prepared on behalf of the public by the Natural Resource Trustees (Trustees) responsible for restoration implementation under the Consent Decree and Memorandum of Agreement (MOA) filed in U.S. District Court, Western District of Washington, in the case of U.S. *et al* v. Texaco Refining and Marketing (Civil Action C98-0371R, 1998). The draft RP/EA describes the affected environment and illustrates restoration alternatives and their environmental consequences. This draft RP/EA was developed in accordance with the Oil Pollution Act of 1990 (OPA), 33 U.S.C. 2706(b); the National Environmental Policy Act (NEPA), 42 USC 4321-4370d, and its implementing regulations, 40 CFR Parts 1500-1508; the Washington State Environmental Policy Act (SEPA), RCW 43.21C; and the MOA.

1.2 Overview of the Four Oil Spills into Fidalgo Bay between 1991 and 1992.

This document addresses four oil spills that occurred at Texaco's Anacortes Refinery facility on February 22, 1991; January 15, 1992; March 9, 1992; and March 25, 1992. These four spills are referred to collectively as the "Oil Spills" in this draft Restoration Plan and Environmental Assessment. Each of the incidents is briefly summarized below.

- The largest of the four oil spills occurred on February 22, 1991. On that date the Texaco's Anacortes Refinery facility experienced a pump housing failure during a ship off-loading operation, causing a release of approximately 5000 barrels of Alaska North Slope crude oil. Approximately 3000 barrels were contained in a catch basin, and of the of the 2000 barrels which were discharged on the land, approximately 550 barrels reached Fidalgo Bay. The weather that prevailed throughout the week after the spill consisted of light to strong northeasterly winds, warm sunny days and weak tides. These conditions helped to contain most of the oil to the southern part of the bay. The spilled oil spread throughout the southern part of Fidalgo Bay and most of the oil stranded along the southern and eastern shorelines. A variety of intertidal habitats were oiled including: salt marsh, eelgrass, mud flats, mixed cobble beaches, boulders, rip-rap and pilings.

  Oil spill response organizations and contractors conducted on-water and shoreline cleanup actions. The United States Coast Guard, the State of Washington (Department of Ecology), and Texaco Response managed response activities under an Incident

Command System (ICS). The ICS included representatives from National Oceanic and Atmospheric Administration (NOAA), the Lummi Nation, the U.S. Fish and Wildlife Service, and the Washington State Departments of Ecology, Fisheries and Wildlife, and Natural Resources. In addition to response activities, the Federal, Tribal, and State Trustees also initiated a variety of pre-assessment studies to evaluate potential resource injuries from the event. Various reports are a part of the administrative record.

- On January 15, 1992 a leak in a pipeline at the Texaco's Anacortes Refinery facility resulted in the release of between two and four barrels (84-168 gallons) of oil onto the ground and in to a drainage ditch that flowed into Fidalgo Bay. While apparently no oil reached the bay, approximately 15 gallons were recovered from the drainage ditch.

- On March 9, 1992, oil was discharged out of a vent at the Texaco's Anacortes Refinery facility. A small amount of oil was spilled, but the oil did enter Fidalgo Bay, causing a visible sheen.

- On March 25, 1992, Texaco's Anacortes Refinery facility experienced a tubing failure when a pipeline and two check valves failed. This caused a release of approximately 11.5 barrels of waste oil/petroleum products, which flowed into nearby surface waters of the state.

1.3 Natural Resource Trustees and Authorities

Both federal and state laws establish liability for natural resource damages to compensate the public for injury destruction and loss of such resources and services resulting from oil spills. Natural resource trustees are authorized to act on behalf of the public under state and federal statutes to assess and recover natural resource damages and to plan and implement restoration actions to restore natural resources injured and lost as a result of oils spills.

This draft RP/EA was prepared jointly by the Washington State Departments of Fish and Wildlife, Ecology, and Natural Resources; the Nooksack Indian Tribe; the Lummi Nation; the Swinomish Indian Tribal Community; Suquamish Indian Tribe; and the U.S. Department of the Interior (represented by the U.S. Fish and Wildlife Service). Collectively these agencies and tribal nations are referred to as the "Trustees" or the "Natural Resource Trustees". The Trustees entered into a memorandum of agreement (MOA) to ensure coordination and cooperation in restoring natural resources as a result of these four oils spills.

Each of the agencies and tribal nations acts as a Natural Resource Trustee pursuant to Oil Pollution Act of 1990 (OPA), 33 U.S.C. 2706 *et seq.*), the State of Washington Water Pollution Control Act (RCW 90.48), and the MOA. The Trustees are following guidance concerning restoration planning and implementation contained in the Oil Pollution Act of 1990 (OPA); 33 U.S.C. 2706 *et seq.*); 15 CFR Part 990 (Department of Commerce natural resource damage assessment regulations); and the Agreement, Consent Decree and MOA for the Texaco Oil Spills (Civil Action C98-0371R, 1998).

1.4 Overview of Fish and Wildlife Resources and Natural Resource Injuries

The oil spills occurred in Fidalgo Bay, Washington, an important estuarine bay that supports a wide variety of fish and wildlife resources. While this document addresses resource injuries and restoration for four spills, most of the following discussion centers around the impacts observed following the largest of the spills that occurred on February 22, 1991. Nearly the entire southern end of Fidalgo Bay was exposed to heavy oil or sheen for days following the spill. The oil covered hundreds of acres of surface water within the bay and impacted over 3000 lineal feet of intertidal shoreline and 2.63 acres of salt marsh. The Fidalgo bay herring stock was spawning in the eelgrass beds at the time of the February 22, 1991 spill and all of the spills occurred when forage fish (smelt, sand lance and herring) eggs or larvae were at, or near, peak abundance in the area. At least 10 acres of eelgrass beds were directly exposed to heavy oil and sheen for days following the incident. Herring eggs were attached to eelgrass throughout much of the area and were directly exposed to the oil. This exposure occurred during the critical early stages of embryonic development when eggs are particularly sensitive to oil effects. Approximately 10% of surf smelt spawning beaches in the Bay was impacted by oil and subsequent cleanup activities. Over 300 waterfowl and shorebirds were killed from direct oiling. Despite cleanup efforts, some oil persisted on intertidal beaches for several years.

1.5 Coordination with Responsible Parties

The State and Federal natural resource damage assessment (NRDA) regulations provide for the trustees to invite the Responsible Party (RP) to participate in the NRDA process. Although the RP may contribute to the process, final authority for determining resource injuries rests with the Trustees. Texaco and the trustees worked cooperatively on the response and pre-assessment activities. On November 22, 1991, the Washington State Attorney General sent a letter to Texaco Refining and Marketing notifying them that the Trustees intended to proceed with a Natural Resource Damage Assessment and formally inviting them to participate in the NRDA and Restoration planning process (Barnett 1991).

Texaco chose to participate in the pre-assessment and NRDA process from the beginning. Both Texaco and the Trustees initiated several studies to assess resource injuries. Concurrently, the Trustees and Texaco entered into negotiations to try to resolve claims for resource injuries in lieu of continuing formal damage assessment studies.

1.6 Settlement of Natural Resource Claims

Texaco and the Trustees evaluated the results of various pre-assessment and damage assessment studies for several years following the incidents. In August 1998, the Trustees and Texaco entered into a settlement agreement and consent decree to resolve the Trustees claims for resource injuries associated with the Oil Spills (Civil Action C98-0371R, 1998). Under this consent decree, Texaco agreed to pay $467,391.65 to a federal court held restoration fund, to restore, enhance, rehabilitate, or acquire the equivalent of natural resources injured by the Oil

Spills. Upon entry of the decree, an account was established in the Registry of the Court titled "Texaco Restoration Fund" (TRF).

As a part of the consent decree, the Trustees entered into a Memorandum of Agreement (MOA) to provide for the coordination and cooperation of the trustees and to address how the money in the TRF is to be spent. In developing the MOA for the consent decree, the Trustees decided to limit the geographic focus area to Fidalgo Bay and to focus proposed restoration efforts to those actions that would benefit spawning and larval rearing habitats for Fidalgo Bay herring, smelt and Pacific sand lance (forage fish) and other resources in the bay. The Trustees felt that the greatest impacts from the oil spills were to the spawning and rearing habitats of the three ecologically important forage fish species (herring, sand lance and smelt) found within Fidalgo Bay. Forage fish are an important element in the food chain and constitute a major portion of the diets of salmon, other fishes, seabirds and marine mammals. The MOA specifically directs that *"the Restoration Fund shall be used only to develop, implement, evaluate and monitor restoration specifically: rehabilitation or acquisition of spawning or larval rearing habitats that will increase and sustain the production base for Fidalgo Bay herring, smelt and sand lance (forage fish) stocks."*

The consent decree and MOA requires the formation of a Trustee Committee to develop a restoration plan before expenditure of funds. A Trustee Committee consists of representatives of the Nooksack Indian Tribe; Lummi Nation, Swinomish Indian Tribal Community; Suquamish Indian Tribe; the U.S. Fish and Wildlife Service; and the Washington State Departments of Ecology, Fish and Wildlife, and Natural Resources). The objective for the Texaco Restoration Committee is to plan and design, coordinate and implement projects that restore, rehabilitate, replace and/or acquire the equivalent of natural resources injured by the oil spills as defined in the consent decree and the MOA.

The Restoration funds were recovered under the Oil Pollution Act (OPA) of 1990 (33 USC 2701 *et seq*.) and the State's Water Pollution Control Act (90.48 RCW). OPA requires that the trustees develop a Draft and Final Restoration Plan and provide an opportunity for public review and comment. Guidance applicable to the development of restoration plans and for selecting appropriate restoration, replacement, or acquisition of equivalent resources and services is contained in 15 CFR Part 990 (Department of Commerce natural resource damage assessment regulations). The Texaco Restoration Committee has developed this RP/EA using these guidelines.

1.7 Public Involvement and Plan Implementation

Public review of the Draft RP/EA is an integral component to the restoration planning process. Through the public review process the Trustees seek public comment on the projects being proposed to restore injured natural resources from these oil spills.

Public review of the draft RP/EA is a standard element of Federal and State laws and regulations that apply to the NRDA process including Section 1006 of OPA, the OPA regulations (15 CFR

Part 990); NEPA (42 USC 4371 *et seq.*) and its implementing regulations (40 CFR Parts 1500-1508; and SEPA (RCW 43.21C) if any state or local permits are required. Following public notice, the draft RP/EA will be available to the public for a 30-day comment period. The Trustees will consider written comments received during this public comment period when preparing the Final RP/EA. Comments will not be accepted by internet.

Comments should be sent to:

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1.7 Administrative Records

The Texaco Restoration Committee has established an administrative record. This record contains documents pertaining to the spills and information used by the committee when identifying, evaluating, selecting, and implementing restoration projects.

Comments received from the public during the 30-day public review process will become part of the administrative record. The administrative record can be viewed at the Department of Fish and Wildlife at the address listed in Section 1.6 above. Please call or email Dan Doty (360-902-8120, dotydcd@dfw.wa.gov) to make an appointment.

1.8 Summary of the Proposed Restoration Project Alternative

The NRDA damage claim and settlement for the oil spills specifically directs that *"the Restoration Fund shall be used only to develop, implement, evaluate and monitor restoration specifically: rehabilitation or acquisition of spawning or larval rearing habitats that will increase and sustain the production base for Fidalgo Bay herring, smelt and sand lance (forage fish) stocks."* The proposed compensatory restoration actions were selected to meet the intent of the settlement for the proposed alternative. The proposed restoration alternative focuses on forage fish restoration, but is also expected to provide benefits to other fish and wildlife species in the area.

The proposed restoration alternative includes the following projects:

- **Project 5.2.1. Acquisition and protection of critical forage fish spawning habitats in Fidalgo Bay.** This project focuses on the acquisition of privately owned tidelands that are used for forage fish spawning in Fidalgo Bay for inclusion into the Fidalgo Bay Withdrawn Area. The primary objectives of this land acquisition restoration project are to provide the maximum protection to forage fish spawning and other critical fish and wildlife nursery areas by permanently excluding future development activities from these areas

- **Project 5.2.2. Restoration of surf smelt and Pacific sand lance spawning habitats at one or more sites in Fidalgo Bay.** This project focuses on restoring degraded intertidal beaches to improve the spawning substrate for surf smelt and Pacific sand lance. The primary restoration objective is to increase the amount and quality of intertidal spawning habitat available for surf smelt and sand lance within Fidalgo Bay. This will be accomplished by rehabilitating degraded intertidal beaches where forage fish spawning was likely to have occurred historically.

The Trustees considered a variety of different projects during the alternatives development stage (Appendix 10.4). Several were expected to be beneficial but were rejected for several reasons. Some were funded by other sources prior to development of this plan and the others were rejected because no specific proposals were submitted or they did not meet one or more of the selection and evaluation criteria in Section 4.2.

2.0 AFFECTED ENVIRONMENT AND NATURAL RESOURCE AREAS OF CONCERN

The four oil spills affected the eastern portion of Guemes Channel, Fidalgo Bay, March Point and Padilla Bay. This section summarizes the physical and biological environment in this area where the four oil spills occurred and focuses primarily on the habitats and biological resources of Fidalgo Bay and Padilla Bay (Figure 1). More detailed information is provided in Antrim *et al.* (2000), on the Padilla Bay National Estuarine Research Reserve web site (http://www.padillabay.gov/).

2.1 Physical Environment of the Fidalgo Bay/Padilla Bay, Washington Area

The area impacted by the oil spills and included for consideration in the restoration planning is geologically and biologically diverse. The area experiences mixed, semi-diurnal tidal cycles, and large portions of Fidalgo and Padilla Bays are exposed at low tides. Guemes Channel is a relatively deep channel that connects two oceanographically different systems at its western and eastern ends. The channel extends from Rosario Strait and Bellingham Channel eastward to Hat Island and March Point, where it connects with Fidalgo and Padilla Bays. Deep waters in the channel provide access to piers and marinas along the Anacortes waterfront and to two oil refinery piers at March Point.

Fidalgo and Padilla Bays are two shallow, muddy bays that are part of an ancient delta of the Skagit River. Fidalgo Bay consists of shallow mudflats generally less than 10 feet deep at mean lower low water (MLLW). Most of the southern portion of the bay is intertidal mudflat. A natural channel about 15 – 20 ft deep at MLLW lies off of the eastern shoreline of the bay along March Point. Extensive beds of eelgrass (*Zostera marina*) are found throughout much of both bays.

Intensive shoreline development and modification has occurred along the northwest portion of Fidalgo Bay and the eastern portion of Guemes Channel. The area is industrialized and has several marinas. These shorelines have been extensively modified and dredged over the years for marinas and commercial development. A railroad trestle across the middle of Fidalgo Bay has modified the water circulation and sediment deposition in the area.

The March Point peninsula separates Fidalgo Bay and Padilla Bay. Two oil refineries dominate the upland area of the peninsula. The refineries use two large piers at the northern tip of the point to dock and unload/load oil tankers and barges. Both piers cross over the intertidal zone and extend into deep water. The intertidal shoreline on March Point ranges from biologically rich mud and eelgrass habitat to highly degraded concrete and rip-rap structures (DNR 2000, People for Puget Sound 2001 and Williams *et al.* 2003).

2.2 Biological Resources

Fidalgo Bay and Padilla Bay are among the most biologically rich and sensitive estuarine areas in the state. Padilla Bay is part of the National Estuarine Reserve Program, and the southern portion of Fidalgo Bay has been withdrawn from leasing by WA Department of Natural Resources and is being evaluated for potential designation as a State Aquatic Reserve. These bays support thousands of acres of eelgrass meadows and extensive areas of salt marsh. Both bays provide food and shelter for a diverse array of invertebrates, fish, birds and other wildlife species.

Wildlife

Birds

This area supports a wide variety of bird species. The Padilla/Fidalgo area is recognized as one of the most important waterfowl wintering spots on the Pacific flyway. These areas support one of the largest wintering areas for Pacific brant and thousands of other marine birds. Bald eagles nest along the shorelines and forage extensively on the abundant prey found in the bay. Peregrine falcons winter and forage in the area. The flats near Padilla Bay support one of the largest known wintering populations of peregrine falcons in North America. There are two great blue heron rookeries in the area and birds from these colonies feed extensively along the shorelines and the extensive tideflats found in both bays. Many species of shorebirds feed and rest in the exposed tideflats and salt marshes in both bays.

Marine Mammals

There are 13 harbor seal haul outs located within Fidalgo and Padilla Bays (Jefferies *et al.* 2000). These sites are used year round as resting sites and several serve nursery areas from June through August.

Fish and Shellfish

The bays support many species of fish and shellfish including forage fish, juvenile salmonids (including federally threatened Puget Sound Chinook stocks), Dungeness crab, and hardshell clams.

Forage Fish

Surf smelt, sand lance and Pacific herring spawning beds are found throughout much of Fidalgo Bay (Figure 1). These ecologically important forage fish species spawn in the intertidal areas and shallow subtidal habitats of Fidalgo Bay. Surf smelt and sand lance spawn on intertidal gravel and sand substrates found throughout the bay. Pacific herring spawn in shallow vegetated eelgrass and macroalgae beds. Forage fish are an important part of the marine ecosystem and are a major portion of the diet of salmon and other fishes, seabirds and marine mammals. The importance of forage fish to other species is well documented and a variety of laws, policies and regulations have been developed to ensure that these critical habitats are protected and restored. These areas have been declared as habitats of special concern under WAC 220-110-250.

Salmonids
The extensive shallow water habitats in Fidalgo and Padilla bays provide a variety of key ecological functions for juvenile salmon. These areas serve as refuge and foraging areas. Salmonids feed extensively on emerging insects, fish larvae (including herring smelt and sand lance), epibenthic crustaceans, and decapod larvae. Juvenile Puget Sound Chinook salmon, listed as threatened under the ESA, are found throughout the area for much of the year.

Dungeness crab
Dungeness crabs (*Cancer magister*) are widely distributed throughout Fidalgo Bay. Juvenile stages settle and rear in shallow intertidal eelgrass, macroalgae beds, oyster beds, and patches of broken shell material. Adults are abundant in the deeper channels, and the area supports a significant recreational and tribal crab fishery.

Hardshell Clams.
Hardshell clams such as littleneck clam (*Protothaca staminea*), manila clam (*Tapes japonica*) and cockles (*Clinocardium nuttalli*) are found in intertidal areas throughout the bay, particularly on Weaverling Spit and Crandall Spit (WDFW GIS Database). Tribal harvests and recreational fisheries occur at several of these sites.

Marine Vegetation.

Eelgrass and Macroalgae.
Submerged beds of aquatic vegetation including eelgrass and macroalgae are found throughout much of Fidalgo and Padilla Bays (DNR 2000). Eelgrass and macroalgae beds are critical rearing and feeding areas for a variety of fish and invertebrate species. Both are used as spawning substrate for Pacific herring. Waterfowl, such as black brant, consume eelgrass. Other birds, such as surf scoters forage on herring eggs and other fauna attached to eelgrass blades. These beds support a diverse community of invertebrate species that are an important part of the prey base for fish and waterfowl.

Tidal salt marshes
Salt marshes fringe the southern portions of Fidalgo and Padilla Bays. These areas are important feeding and rearing areas for many species of fish and wildlife. They support a variety of insect species important for birds and juvenile fishes, such as Chinook salmon.

2.3 Federal and State Protected Areas

Padilla Bay National Estuarine Research Reserve.

The 11,000-acre Padilla Bay National Estuarine Research Reserve (NERR) is an estuary at the edge of the Skagit River delta. Eight miles long and three miles across, the Reserve contains beds of ecologically valuable eelgrass, which is habitat to salmon, crab, perch, and herring. The reserve contains extensive seagrass meadows, tidal flats and sloughs, salt marshes, and upland forests and meadows. Key species include seagrasses (*Zostera marina* and *Zostera japonica*),

Dungeness crab, salmon, black brant, bald eagle and peregrine falcon (Padilla Bay National Estuarine Research Reserve web site, http://www.padillabay.gov/).

There are nearly 8,000 acres of eelgrass in Padilla Bay. Eelgrass is valuable because it is habitat for wildlife and commercially harvested animals. Eelgrass is used as a nursery by salmon, crab, perch, and herring. Eelgrass is also home for millions of worms, shrimp, clams, and other invertebrates, which are food for great blue herons, eagles, otters, seals, as well as humans (http://www.padillabay.gov/).

Fidalgo Bay Withdrawn Area

South Fidalgo Bay is biologically rich with extensive native eelgrass beds and tidal mud flats that support spawning and rearing for forage fish including Pacific herring, surf smelt and sand lance. It is also home to many other species, including migratory waterfowl and abundant marine organisms. South Fidalgo bay provides unique habitat to bald eagle, peregrine falcon and salmonids, including Puget Sound Chinook salmon, which are listed as threatened under the Endangered Species Act.

On May 23, 2000, the Washington Department of Natural Resources withdrew 700 acres of aquatic tidelands in southern Fidalgo Bay from leasing (Belcher, 2000). The purpose of this withdrawal order was to protect the natural values on these state owned aquatic lands. DNR is currently evaluating the potential designation of this area as an Educational, Environmental and Scientific Aquatic Reserve.

3.0 INJURED RESOURCES

The four oil spills injured a variety of fish and wildlife species. Most of the following discussions on resource injury pertain to the February 22, 1991 spill.

Trustee biologists conducted a variety of assessments to evaluate potential effects of the spill on natural resources. The Department of Interior and the State of Washington conducted a pre-assessment screen for injuries to natural resources within Fidalgo Bay for the February 22, 1991 spill. On November 22, 1991, the Washington State Attorney General sent a letter to Texaco Refining and Marketing informing them of the results of the pre-assessment screen (PAS) and listing a variety of potentially affected resources. Of those species and services listed, the trustees focused their efforts at investigating injuries to intertidal habitats (beaches, salt marshes and eelgrass), marine birds/waterfowl, forage fish (herring, sand lance, and surf smelt), and Dungeness crab. These injuries are summarized below.

3.1 Intertidal Habitats

Shorelines and Shallow Water Tidelands:
Over 3000 lineal feet of intertidal cobble, gravel and mud shoreline were heavily oiled by the event. Hundreds of acres of shallow water tidelands were exposed to oil sheen. Most of the tide flats in the southern portion of Fidalgo Bay were exposed to oil and oil sheen for several day/weeks following the spill. Several stretches of heavily oiled beach were excavated and removed and were subsequently refilled with clean material

Vegetated Habitats: Eelgrass and Salt marsh
At least 10 acres of eelgrass beds were exposed to heavy oil or were impacted during cleanup activities. Several hundred acres of vegetated habitats were exposed to light sheens for days after the spill. Eelgrass and its associated fauna were directly exposed to oil during low tides for several days/weeks following the incident. Boat propellers churned swathes of eelgrass up during skimming and cleanup operations, particularly on the east shore of the bay north of the trestle (e.g. Penttila 1991).

A total of 2.63 acres of salt marsh were oiled in the southern part of the bay.

3.2 Marine Birds and Waterfowl

Trustees conducted a series of oiled bird surveys and collected live and dead oiled birds following the February 22, 1991 spill. Results are reported in the Wildlife Injury Assessment Report (WDW 1991) and summarized here. During the period from February 24 to March 5, 1991 a total of 166 oiled birds were collected. Of these, 80 were found dead. Eighty-six were found alive and underwent primary care prior to being transferred to the IBRRC cleaning and rehabilitation center in Lynwood. Twenty-one survived and were eventually released. The remaining 65 birds died during rehabilitation. The total mortality of recovered birds was 145. The dead oiled birds recovered included: 2 grebes, 114 waterfowl (buffleheads, mergansers etc.), 22 shorebirds, two gulls and five unidentified. Surveyors also observed two oiled bald

eagles in the area and 30-40 other oiled birds that were not captured. Overall, it is estimated that over 300 birds died from oiling.

Indirect effects also occurred as a result of ingestion of contaminated of prey species in the intertidal and shallow subtidal habitats.

3.3 Forage Fish (Pacific Herring, Surf Smelt and Pacific Sand lance)

Pacific Herring

The February 22, 1991 spill occurred during the peak period of spawning for the Fidalgo Bay herring stock and exposed a large portion of the spawning area to oil. Developing eggs, newly hatched larvae and spawning habitats were directly exposed to oil from the spill. Oil was distributed in the shallow waters of the bay directly over herring eggs deposited in eelgrass and macro-algal beds. As the tides ebbed, the oil bathed the eggs/embryos with oil, raising concern about acute and long-term impacts to the population from exposures to the oil. Herring are known to be susceptible to toxic effects of North Slope crude oil and exposure to very low levels (low parts per billion) of polycyclic aromatic hydrocarbons (PAHs) can cause injury in developing embryos and larval fish (Carls *et al.* 1999). Suspected herring injuries include immediate and long-term effects on herring eggs and larvae, decreased habitat quality, and contaminated food.

Field studies verified that herring spawn and larvae were present in the area at the time of the spill (Penttila 1991). However, no detailed laboratory studies were conducted to evaluate the immediate effect of the oil spill on herring eggs or larvae. The trustees were concerned about the potential long-term effects of the spill on the Fidalgo Bay herring stock. In 1994, the trustees funded a study to determine if the 1991 oil spill in Fidalgo Bay had produced any long-term residual impacts that might affect the survival or reproduction of herring that were present as embryos or larvae at the time of the spill. Researchers from University of Washington, Occidental College, and University of British Columbia evaluated a variety of assessment endpoints from Fidalgo Bay and three reference sites to examine the potential for reproductive effects on breeding adults and the survival of their naturally spawned eggs as a result of the spill (Kocan *et al*. 1996). Assessment endpoints included embryo survival, live hatch, larval weight, larval deformities, genetic and cytological damage, and larval condition. Overall results were inconclusive due to confounding factors or suggest no significant long-term effects compared to reference sites. However, results suggested reduced embryo survival in the Fidalgo Bay samples.

Surf Smelt

The stranded oil also impacted a large portion of the known intertidal surf smelt and Pacific sand lance spawning habitats in the bay. About 10% of the surf smelt spawning habitat in the bay was heavily oiled in the February 22, 1991 spill (Penttila, 1991) and other beaches were exposed to oily sheen. Extensive cleanup activities were conducted to try to salvage the beaches. In some areas the oiled gravel was removed and replaced with clean gravel.

The intertidal spawning habitats were directly oiled from the spill. The February 22, 1991 oil spill coincided with the later part of the winter surf smelt spawning and the peak of the larval rearing period in Fidalgo Bay. Developing surf smelt eggs were on these oiled beaches at the time of the spill and were directly impacted by the spill. Newly hatched smelt larvae and juveniles were exposed to dissolved fractions of oil in the water column. In addition to the direct impacts, there was concern about the long-term effects of the residual oil on the long-term quality of the intertidal spawning substrates. About 10% of the spawning habitat in the bay was oiled in the February 22, 1991 spill, and some oil was still present in some of the spawning areas of the bay one year after the spill. Shoreline cleanup activities and the presence of residual oil reduced the quantity and quality of the spawning habitat in the bay.

Pacific Sand Lance

Sand lance eggs were not present on the beaches but larvae were highly abundant throughout the bay at the time of the spill. These larvae were exposed to dissolved fractions of oil in the water column. In addition to the direct impacts, there was concern about the long-term effects of shoreline cleanup activities and residual oil on the quantity and quality of intertidal spawning substrates in the bay.

3.4 Shellfish

Dungeness Crab

Young of year (YOY), juvenile and adult crab are abundant in the Fidalgo Bay and reside in the intertidal and shallow subtidal channels. As the tides ebbed, the oil bathed the crabs and their shallow intertidal mud and eelgrass habitats with oil, raising concern about impacts to the population from acute and long-term exposures to the oil. An estimated 10 acres of eelgrass beds used by juvenile Dungeness crab as foraging and refuge habitat were exposed to oil or were damaged by propeller wash from response boats during cleanup activities.

In addition to being directly exposed to oil in their habitats, Dungeness crab were also likely exposed to oil via ingestion of contaminated prey and from scavenging on organisms killed by the spill.

Hard-Shelled Clams

A high number of dead manila and butter clams were observed on the heavily oiled beaches on the eastern shore of Fidalgo Bay following the spill (Penttila, 1991). The extent of these impacts was not assessed.

4.0 RESTORATION PLANNING

4.1 Restoration Strategy

The Trustees have developed this draft Restoration Plan and Environmental Assessment (RP/EA) to comply with the directives and intent of the Settlement Agreement, Consent Decree and MOA in U.S. *et al* v. Texaco (C98-0371R) and with regulatory requirements under the Oil Pollution Act of 1990, the National Environmental Policy Act (NEPA), and the Washington State Environmental Policy Act (SEPA).

In developing this draft RP/EA, the TRC trustees focused the evaluation and selection of restoration planning on projects that would meet the intent of the settlement agreement and MOA. The MOA specifically directs that *"the Restoration Fund shall be used only to develop, implement, evaluate and monitor restoration specifically: rehabilitation or acquisition of spawning or larval rearing habitats that will increase and sustain the production base for Fidalgo Bay herring, smelt and sand lance (forage fish) stocks."*

Since resource damages for the Texaco Oil Spills were recovered under the authority of OPA 1990, the trustees were required to develop this restoration plan under OPA regulations and process. The goal of the restoration process is to restore injured natural resources and compensation for interim lost use of those resources. OPA requires that this goal be achieved by returning injured resources to pre-incident (baseline) conditions and by compensating for any interim losses of natural resources during the period of recovery to these baseline conditions.

Restoration actions under the OPA regulations are either primary or compensatory. Primary restoration is action(s) taken to return the injured natural resources and services to baseline on an accelerated time frame by directly replacing the resource or service. As one form of primary restoration, the OPA regulations require that Trustees consider natural recovery of the resource. Trustees may select natural recovery under three conditions: 1) if feasible; 2) if cost-effective primary restoration is not available; or 3) if injured resources will recover quickly to baseline without human intervention. Primary restoration alternatives can range from natural recovery, to actions that prevent interference with natural recovery, to more intensive actions expected to return injured natural resources and services to baseline faster or with greater certainty than natural recovery alone.

Compensatory restoration includes actions taken to compensate for the interim losses of natural resources and/or services pending recovery. The type and scale of compensatory restoration depends on the nature of the primary restoration action and the level and rate of recovery of the injured natural resources and/or services, given the primary restoration action. When identifying compensatory restoration alternatives, Trustees must first consider actions that provide services of the same type and quality and that are of comparable value as those lost. If a reasonable range of compensatory actions of the same type and quality and comparable value cannot be found, Trustees then consider other compensatory restoration actions that will provide services of at least comparable type and quality as those lost. Compensatory restoration alternatives must be

scaled to ensure that the size or quantity of the proposed project reflects the magnitude of the injuries from the spill.

To reduce transaction costs and avoid delays in restoration, the OPA regulations encourage the trustees to conduct the NEPA and/or SEPA process concurrently with the development of the draft restoration plan.

To comply with the requirements of NEPA and SEPA, the Trustees analyzed the effects of each preferred alternatives on the quality of the human environment. NEPA's implementing regulations direct federal agencies to evaluate the potential significance of proposed actions by considering both context and intensity. For the actions considered in this RP/EA, the appropriate context for considering potential significance of the action is regional, as opposed to national or worldwide.

4.2 Selection Criteria for Projects under the Alternatives

OPA regulations recommend that the Trustees state their preferred projects alternative and explain the basis for their selection or rejection of other alternatives. The TRC evaluated and selected restoration projects using guidance provided in OPA 90, the consent decree and the MOA. Each of the selected projects in the proposed alternative were evaluated for compliance with applicable state and federal laws and policies.

In accordance with the consent decree and the MOA, the Texaco Restoration Committee considered only projects that focused on the "*rehabilitation or acquisition of spawning or larval rearing habitats that will increase and sustain the production base for Fidalgo Bay herring, smelt and sand lance (forage fish) stocks.*" The MOA lists the following additional guidance on the types of activities that may qualify for funding.

1) Assessments and studies that are necessary for reviewing and prioritizing restoration project proposals and for determining the effectiveness of the projects.
2) Evaluation and monitoring that will include biological assessments to define the ecology and habitat requirements of Fidalgo Bay herring, smelt, or sand lance stocks.
3) Sediment and water quality contamination assessments as deemed necessary and appropriate to account for potential impacts on productivity of forage fish stocks.
4) Assessments will be designed to provide information not collected as a part of ongoing fish stock and habitat management activities.
5) "Acquisition", including aquatic land stewardship actions (by private parties, tribes and the State) that result in greater long-term protection of the Fidalgo Bay forage fish spawning and larval rearing habitats than regulations alone can provide.
6) "Rehabilitation" actions to bring injured natural resources/services to a desired beneficial state.

The Trustees developed a list of potential forage fish related projects and categorized them into one or more of the activities listed above. The Trustees then solicited project proposals from trustees and private contractors. They then evaluated each project proposal received using the criteria in the MOA, OPA 90, and the financial constraints of the settlement.

OPA regulations recommend that the Trustees develop a reasonable range of primary and compensatory restoration alternatives and then identify the preferred alternatives based on criteria provided at 15 CFR Part 990.54(a):

1. Cost to carry out the project.
2. Extent to which each project is expected to meet the Trustees' goals and objectives in returning the injured natural resources and services to baseline and/or compensating for interim losses.
3. Likelihood of success of each project.
4. Extent to which each project will prevent future injury as a result of the incident and avoid collateral injury as a result of implementing the alternative.
5. Extent to which each project benefits more than one natural resource and/or service.
6. Effect of each project on public health and safety.

In addition, the trustees considered other factors including:

1. Cost effectiveness.
2. Opportunities to collaborate with other entities involved with restoration planning.
3. Compliance with applicable state and federal laws and policies.

To reduce transaction costs and avoid delays in restoration, the Oil Pollution Act regulations encourage the Trustees to conduct the NEPA/SEPA process concurrently with the development of the restoration plan. To comply with the requirements of NEPA/SEPA, the Trustees analyzed the effects of each project in the preferred alternative on the quality of the environment. With respect to evaluating the intensity of the impacts of the proposed action, the NEPA regulations suggest consideration of ten factors:

1. Likely impacts of the proposed project.
2. Likely effects of the project on public health and safety.
3. Unique characteristics of the geographic area in which the project is to be implemented.
4. Controversial aspects of the project or its likely effects on the human environment.
5. Degree to which possible effects of implementing the project are highly uncertain or involve unknown risks.
6. Effect of the project on future actions that may significantly affect the human environment.
7. Possible significance of cumulative impacts from implementing this and other similar projects.
8. Effects of the project on National Historic Places, or likely impacts to significant cultural, scientific, or historic resources.
9. Degree to which the project may adversely affect endangered or threatened species or their critical habitat.
10. Likely violations of environmental protection laws.

The Trustees have attempted to analyze the projects and the environmental consequences based on the conceptual designs rather than detailed final plans. Therefore, the details of specific projects may require additional refinements to reflect site conditions. Projects may also change to reflect public comment and further Trustee analysis. Any specific environmental reviews or permits necessary for specific projects will be the responsibility of the project proponents.

4.3 Summary of Restoration Projects Considered

The preliminary list of projects in the preferred alternative considered for funding is summarized in Table 1. In developing this list, the TRC consulted with the Herring Technical Committee (HTC), the Fidalgo/Guemes Area Technical Committee, and other resource management experts. The TRC also considered other ongoing activities and restoration planning efforts in the area. The committee reviewed and considered project opportunities identified in the "Plan for Habitat Protection, Restoration and Enhancement in the Fidalgo/Guemes Area" (Antrim *et al.* 2000), a report prepared for the City of Anacortes by Battelle and the Fidalgo/Guemes Area Technical Committee and efforts of the Cherry Point Technical Committee. The TRC also recognizes the planning efforts of the Skagit County Marine Resources Committee and People for Puget Sound and will attempt to identify opportunities for collaboration with these entities in the development of specific projects.

Table 1. Summary of projects considered by the Texaco Restoration Committee meeting the restoration planning and evaluation criteria. The following projects are included in the proposed preferred alternative and the No Action Alternative for funding from the Texaco Restoration Fund.

Project	**Project Description**
Reimburse Coastal Protection Fund (CPF)	The Texaco Settlement money included a reimbursement for $60,407 for a herring damage assessment study funded in by the CPF in 1992. Funds from the TRF were used repay the CPF per agreement.
Historical Analysis of Fidalgo Bay Habitats	Fund an historical analysis of habitat impacts and to provide restoration recommendations in Fidalgo/Guemes area. Support ongoing restoration and management planning efforts in the area.
Acquisition and Protection of Critical Forage Fish Spawning Habitats In Fidalgo Bay	Fund the Skagit Land Trust to acquire about 125 acres of critical intertidal habitats for preservation and restoration. Transfer lands to DNR for inclusion into the Fidalgo Bay Aquatic Reserve and fund SLT to manage conservation easements.
Surf Smelt and Sand Lance Spawning Habitat Enhancement in Fidalgo Bay	Identify degraded intertidal shorelines in Fidalgo Bay and replace or enhance existing substrate with gravel appropriate for surf smelt spawning.
No Action	Allow natural recovery to occur.

4.4 Expenditures from the Restoration Fund prior to completion of the RP/EA

A portion of the Texaco Restoration Fund was spent prior to the development of the draft RP/EA. In accordance with the consent decree and the MOA and TRC Resolution 2001-1, the committee approved: 1) funding for a pilot study using dollars generated as interest from the fund to support the restoration planning and selection process and, 2) reimbursement to the Coastal Protection Fund for the costs of a resource damage assessment study conducted prior to the final settlement.

Pilot project to assist with restoration planning.

As a part of the restoration planning process, the TRC agreed to fund a $25,000 pilot project to help aid the selection and evaluation of restoration projects being considered for inclusion in the Draft and Final Restoration Plan. This money, generated as interest from the restoration fund, was used to support a project to assist the TRC and local restoration planning efforts. The objectives of this project, "Historical Nearshore Habitat Change Analysis in Fidalgo Bay and Guemes Channel" (Williams *et al.* 2003), were to quantify anthropogenic changes to nearshore habitats in the area. In addition to aiding the TRC, this information is being used by state and local resource managers for local bay wide management planning efforts and is being incorporated into an area wide plan for habitat protection, restoration and enhancement in the Fidalgo/Guemes Channel area.

Reimbursement of funds to the Washington State Coastal Protection Fund.

An additional $60,407 of the settlement fund was spent prior to the completion of this RP/EA. This money was used to reimburse the Washington State Coastal Protection Fund for money that it provided to the Trustees to administer, oversee and conduct the ***"Fidalgo Bay Herring Embryo Evaluation"*** per 1994 Interagency Agreement WDFW No. 810-000401. This study was conducted to assess potential long-term impacts of the spills on the productivity to forage fish stocks in Fidalgo Bay. A condition of this 1994 agreement was that the Coastal Protection Fund be reimbursed with money received from the Texaco spills settlement.

5.0 EVALUATION OF RESTORATION ALTERNATIVES

The committee evaluated two different alternatives to restoration: the no-action alternative and an alternative that includes selected projects that will protect and restore forage fish habitats in Fidalgo Bay.

5.1 No-Action/Natural Recovery

NEPA requires the Trustees to consider a "no action" alternative, and the OPA regulations require consideration of the equivalent, the natural recovery option. Under this alternative, the Trustees would take no direct action to restore injured natural resources or compensate for lost services pending environmental recovery. Instead, the Trustees would rely on natural processes for recovery of the injured natural resources. While natural recovery would occur over varying time scales for various injured resources, the interim losses suffered would not be compensated under the no-action alternative. The no-action alternative has no environmental consequences because, by definition, no manipulations to the environment would take place. There are direct impacts (losses) to the species and habitats given the additive reduction of "recovery" over the period of time versus that of the preferred alternative.

It has been over 10 years since the oils spills in 1991 and 1992. The Trustees have determined that primary restoration for many of the injured resources has occurred through natural recovery processes. However, the OPA clearly establishes Trustees responsibility to seek compensation for interim losses. This responsibility cannot be met through the no-action alternative. Losses were suffered during the period of recovery for the spills and technically feasible and cost effective alternatives exist to compensate for these losses. The Trustees have rejected the no-action alternative and have determined that compensatory restoration is required to address these interim losses.

5.2 Preferred Alternative: Forage Fish Habitat Protection and Restoration Projects

The following sections describe the two proposed habitat protection and restoration projects in the preferred alternative. Work plans, with details regarding scope of work, schedules, budgets and other applicable information are not presented here but will be prepared for review and adoption before implementation of any project. The committee will appoint an executive director to administer the implementation of the final restoration plan per the directives of the TRC.

5.2.1 Protection of Critical Forage Fish Spawning Habitats In Fidalgo Bay

Project Description

The first project in the preferred alternative focuses on the preservation and protection of forage fish habitats through the acquisition of lands where forage fish spawn. Much of the critical forage fish spawning in Fidalgo Bay occurs on privately owned tidelands. A variety of water

dependent industrial use activities and shellfish aquaculture may be allowed on these properties depending on the particular parcel. The Anacortes area is growing dramatically and there is increasing pressure to develop portions of Fidalgo Bay for marinas and for industrial and residential use that could result in a loss of forage fish spawning grounds. The spawning habitats used by herring, smelt and sand lances are quite specific and there is no proven method to successfully replace or mitigate for lost spawning grounds. Long-term protection of these critical areas can be assured by securing privately owned lands where spawning occurs and incorporating them into the Fidalgo Bay Aquatic Reserve.

This preferred compensatory restoration project involves the fee simple acquisition, from willing sellers, of privately owned tideland properties within the bay that support forage fish spawning. For this preferred alternative, portions of the settlement funds will be allocated for the acquisition of tidelands necessary to support forage fish spawning in Fidalgo Bay. Selected sites for acquisition will either have existing high quality spawning habitats or may be degraded habitats that have a high potential to support forage fish spawning when restored.

Skagit Land Trust (SLT), a private non-profit nature conservancy organization, would serve as the agent to facilitate the purchase of tidelands from willing sellers through fee simple acquisition, or by acquiring perpetual conservation easements. The Skagit Land Trust proposes to acquire additional high quality habitat for forage fish in South Fidalgo Bay. Currently, 700 acres in the bay are managed by WDNR as a "Withdrawn Area" where leasing is prohibited. This area is currently being evaluated by DNR for designation as an Aquatic Reserve. The Trust holds a perpetual conservation easement on the core 60% of these lands (450 acres). Additional properties acquired will be protected with a conservation easement held by the Trust, and then transferred to a public agency to build upon the existing reserve.

Within the withdrawn area and proposed aquatic reserve, approximately 240 acres of tidelands remain in private ownership in 25 separate parcels. Significant eelgrass beds and herring spawning areas have been identified on a number of these parcels. Among these private parcels, the Trust proposes to focus on acquiring properties, from willing sellers, which have the highest habitat value for forage-fish.

The Trustee's goal is to protect and transfer at least 125 acres of high quality tidelands into the Fidalgo Bay Withdrawn Area. Preliminary consultations with Trustee biologists indicate that the western portion of the project area is higher priority for protection. However, all landowners within the project area would be contacted. After determining the availability of individual parcels, the Trust would consult with Trustee biologists and land managers to determine acquisition priorities and to provide recommendations to the TRC. The TRC would review these recommendations and make final decisions regarding the acquisitions.

Restoration Goals

The primary goal of this land acquisition project is to provide the maximum protection to forage fish spawning and other critical fish and wildlife nursery areas by permanently excluding future

development activities from these areas. While existing regulations provide some protection for these habitat resources, current development standards and shoreline regulations allow activities that could significantly degrade the habitat value in south Fidalgo Bay. Much of this area has recently been annexed to the City of Anacortes. The site is zoned "Light Manufacturing" which allows for commercial and industrial development. Allowed uses under Skagit County's Shoreline Management Master Program includes aquaculture, commercial and industrial uses. Future development activities in the area may include channel dredging and the construction of new marinas, piers, and docks. Public ownership and management, combined with conservation easements held by SLT could permanently protect some of the critical forage fish habitats in the area from these threats.

Scaling Approach

The Trustee's goal is to protect and transfer to public ownership at least 125 acres of high quality tidelands into the Fidalgo Bay Withdrawn Area. Critical eelgrass and vegetated habitats used for herring spawning are present on these privately owned tidelands. The Trustees concluded that the acquisition of critical forage fish spawning habitats, in combination with the beach restoration projects to enhance surf smelt and sand lance spawning would provide compensation for forage fish injuries that resulted from the oil spills. The forage fish habitats targeted for proposed acquisition are located in an area where threats of development are persistent and imminent.

Probability of Success

The success of this project would depend upon finding tideland property owners who are willing to sell their properties at fair market value. SLT successfully negotiated the purchase of 450 acres of tidelands in south Fidalgo Bay in 1999. These lands were subsequently incorporated into the Fidalgo Bay Withdrawn Area, and protected with a Conservation Easement held by SLT. SLT has contacted several of the landowners in the area and several have expressed an interest in selling. Overall, the Trustees believe that the probability of success for this project would be high.

Performance/ Success Criteria and Monitoring

The proposed goal would be to permanently protect at least 125 additional acres by adding them to the Fidalgo Bay State Aquatic Reserve. Success would be measured by completion of necessary transaction work and by the number of acres of high priority tidelands transferred to DNR for inclusion in the Fidalgo Bay Aquatic Reserve. SLT would hold a conservation easement on the property and be responsible for stewardship and compliance monitoring to ensure that the easement is upheld over time.

Environmental and Socio-Economic Consequences

This proposed project within the preferred alternative is not expected to have any significant adverse environmental impacts. Property acquisitions would benefit forage fish by identifying the best remaining and available habitat in south Fidalgo Bay, and by providing it with permanent protection. In addition to being important forage fish spawning areas, these areas are also ecologically important for a wide range of other fish and wildlife species. These lands would provide positive benefits for human recreational use and positive scientific and public education benefits. The acquisition approach to habitat protection would restrict future development and other activities on the tidelands, however, the program is voluntary and landowners would be compensated at fair market value.

Estimated Project Costs

The TRC has initially allocated $248,900 for acquisition of land and conservation easements. This includes the costs for realty transactions, appraisals, biological and environmental assessments, legal review, project management and stewardship of the conservation easements. Actual project expenditures for administrative elements will be negotiated with the objective of maximizing the dedication of funds toward land acquisition. A draft list of specific tasks, work products, deliverables and an estimated time line for the project is provided in Appendix 10.2.

Note: The TRC may redistribute any unused funds to support surf smelt and sand lance spawning beach habitat enhancement projects in the greater Fidalgo Bay/Guemes Channel area if the SLT is unable to find willing sellers.

Evaluation

This proposed project is consistent with OPA criteria, the intent of the MOA, and Trustee selection criteria established for this settlement. Furthermore, protection of forage fish spawning habitat is one of the key goals of the WDFW Forage Fish Management Policy. While current regulations provide for the protection of these habitats, the TRC feels that the best long-term protection of these critical areas could be assured by securing privately owned lands where forage fish spawning occurs and incorporating them into the Fidalgo Bay Aquatic Reserve. The proposed project would also provide long-term benefits and protection to other natural resources including threatened Puget Sound Chinook salmon, Dungeness crab, marine birds, and eelgrass beds.

5.2.2 Surf Smelt and Sand Lance Spawning Habitat Enhancement in Fidalgo Bay

Project Description

This project focuses on restoring degraded intertidal beaches to improve the spawning substrate for surf smelt and Pacific sand lance. Both species deposit and incubate their eggs in upper intertidal sand-gravel beaches. These spawning beaches are quite vulnerable to the negative impacts of human shoreline development and manipulation.

Historical analysis and shoreline inventories conducted by DNR (1996), People for Puget Sound (2001) and Williams et al (2003) suggest that significant portions of the potential surf smelt and sand lance spawning habitats in the Fidalgo Bay/March Point area have been lost or degraded by shoreline armoring. These beaches have been altered through the addition of riprap, concrete bulkheads, and creosote pilings from industrial activities in the bay. A large railroad bed and trestle crosses the southern half of Fidalgo Bay and has altered the natural processes that control tidal flows, long-shore transport and deposition of beach substrates in the area.

There is no proven mitigation methodology known to suitably replace surf smelt or sand lance spawning habitat. However, there is a growing amount of evidence that suggests that degraded beaches can be improved by removing the physical beach structures that disrupt the natural beach processes and by beach nourishment (adding gravel/sand to the beach to provide spawning substrate for the fish). The TRC proposes to fund one or more experimental beach enhancement projects to restore spawning substrate and to monitor the efficacy of these projects as a tool for future restoration.

The Trustees are in the process of developing partnerships and coordinating efforts with the City of Anacortes and local resource protection and restoration planning groups (such as the Skagit Land Trust, the Skagit County Marine Resources Committee, and People for Puget Sound) to identify, evaluate and select one or more project restoration sites in Fidalgo Bay. The Skagit County Marine Resource Committee is currently conducting an inventory of potential beach conservation/restoration sites in the county ("Blueprint" for Skagit Bays Conservation/Restoration Sites Project). The focus of this inventory is to identify sites with a high potential for successful beach restoration and to select sites to target for restoration funding. Efforts such as this will aid in the site selection process. Final site selections would be based on the potential for successful beach enhancement and the ability to obtain long-term protective conservation easements on the property.

The restoration would be conducted in several phases. The first phase will be a thorough evaluation and environmental review of the selected candidate sites. Hydrologic and biological assessments would be conducted on the site as will a complete delineation of the intertidal and upper shore habitat types. A detailed project plan would be developed and submitted to regulatory agencies for appropriate environmental review and approval. All necessary permits would be obtained.

The construction phase may involve removal of debris or other structures from the beach, and would include the deposition of sand/gravel mix to the upper intertidal area between the +5 to +9 ft MLLW tidal elevation. The sand/gravel mix will be a "fish-mix" with a grain size appropriate for forage fish spawning. Gravel would be placed in the upper intertidal beaches where spawning occurs and all efforts will be made to minimize impacts to adjacent areas. The site would be monitored over a period of several years and additional sand/gravel mix may need to be added to maintain appropriate spawning conditions.

Restoration Goal

The primary restoration goal is to increase the amount and quality of intertidal spawning habitat available for surf smelt and sand lance at one or more site within Fidalgo Bay. This would be accomplished by rehabilitating degraded intertidal beaches where forage fish spawning was likely to have occurred historically.

Scaling Approach

This proposed project is expected to restore or enhance at least 600 feet of degraded beach to conditions more suitable for forage fish spawning. The trustees believe that this project, in combination with the tideland habitat acquisitions would provide sufficient compensation for the injuries that occurred to intertidal forage fish habitat from the spills.

Probability of Success

Beach nourishment mitigation and restoration projects have been successful at other sites in Puget Sound. The final project sites would be selected within the known forage fish spawning area in the bay. The Trustees believe that this project, with appropriate monitoring and maintenance, would be successful.

Performance/ Success Criteria and Monitoring

The success criteria for this project will be an increased availability of forage fish spawning habitat and documentation that forage fish are spawning at the restoration site. The site(s) will be monitored for at least 5 years following construction, as a part of the project costs. Biologists or trained volunteers will routinely monitor the site for fish spawning and changes to the intertidal community in the project area. Physical characteristics of the restored beach will be routinely monitored to assess the stability and movement of beach sediments. The TRC will work with other partners in the restoration effort to ensure that long term monitoring and maintenance continue as needed for many years.

Environmental Consequences

The intertidal beach restoration project(s) are not anticipated to have any significant and deleterious environmental or socioeconomic impacts. An environmental review will be conducted prior to project implementation, and efforts will be made to minimize any impacts to adjacent areas during construction. There may be some short-term negative impacts during project construction to the intertidal communities on the restoration site(s). However, the Trustees expect that the project would provide long-term benefits to forage fish and a suite of other fish and wildlife by converting a degraded site to one that reflects more natural, historic conditions. Potential impacts from the project are summarized here.

- **Erosion and Sedimentation**—The Trustees expect short-term impacts to water quality (sedimentation) as a result of construction-related activities. These impacts will be minimized through careful design and appropriate construction practices, including seasonal construction windows and sediment control structures. These potential impacts will be addressed through the permit conditions for the project.

- **Endangered Species**—No significant adverse impacts are expected for endangered species. There are no endangered plants in the project area. The permit conditions and construction plans for the project will address protection measures for endangered salmon, including seasonal construction windows, erosion control measures, and spill containment for heavy equipment. Endangered salmon species may benefit from increase in forage fish prey populations at restoration sites.

- **Wildlife Impacts**—No significant adverse impacts are expected for wildlife. Overall, wildlife species are expected to benefit from the projects but wildlife activity may be temporarily disturbed during the construction phase of the project. If sensitive wildlife species are found during the project (e.g., nesting birds), the work may be modified or stopped to minimize impacts.

- **Archaeology**—Archaeological sites are located in the Fidalgo Bay area. The Trustees or project managers will consult with the Tribes and the Office of Archaeology and Historic Preservation to ensure that any sites would remain undisturbed by the proposed restoration actions.

Estimated Project Costs

The TRC has allocated approximately $184,000 for this proposed project. This includes the costs for project design, biological and chemical assessments, construction and monitoring, and project management and administration. The TRC is in the process of soliciting specific proposals for this project. A detailed proposal and cost breakdown have not been finalized. The Trustees are also exploring partnership opportunities with other restoration groups, and the scope of this project may expand if additional funding sources can be secured. Actual project expenditures for administrative elements would be negotiated with the objective of maximizing

the dedication of funds toward beach restoration. A draft list of specific tasks, work products, deliverables and an estimated time line for this proposed project is provided in Appendix 10.3.

Note: The TRC may redistribute any unused funds to support land acquisitions (Project 5.2.1) in the greater Fidalgo Bay area.

Evaluation

Intertidal smelt and sand lance spawning beaches were directly impacted by the spills and this restoration project will help compensate for injuries to these spawning habitats in the bay. Large portions of the intertidal surf smelt and sand lance spawning habitats in the Fidalgo Bay/March Point area have been lost or degraded by shoreline armoring practices. Restoring these habitats should result in an increase in the spawning productivity. The TRC feels that this project is consistent with OPA criteria, the intent of the MOA, and Trustee selection criteria established for this settlement. Beach nourishment restoration methods are technically feasible and appear to have the highest likelihood of success compared to other options considered. Lessons learned from this pilot project will also help in the development of future beach enhancement projects.

5.3 Environmental Consequences (Indirect, Direct, Cumulative)

To restore resources and/or services lost as a result of the Incident, the Trustees examined a variety of proposed projects under the following restoration alternatives: 1) no-action and natural recovery and 2) ecological restoration. The Trustees intend to avoid or reduce negative impacts to existing natural resources and services to the greatest extent possible. However, in implementing or approving the implementation of restoration actions, the Trustees could undertake actions that may have short- or long-term effects upon existing habitats or non-injured species. Project-specific environmental consequences for each project are provided in Section 5.2. This section addresses the potential overall cumulative, direct, and indirect impacts and other factors to be considered in both the Oil Pollution Act and NEPA regulations.

The Trustees believe that the projects selected in this final RP/EA will not cause significant impacts to natural resources or the services they provide. Further, the Trustees do not believe the projects will affect the quality of the human environment in ways deemed significant.

Direct Impacts—Overall, preferred restoration actions included in this final RP/EA would enhance the functionality of the ecosystem and provide long-term protection to environmentally sensitive areas and habitats used by threatened salmon species. There may be, however, some short-term impacts from the beach restoration project(s) such as:

- **Noise and Air Pollution**—Machinery and equipment used during construction and other restoration activities will generate noise. This noise may temporarily disturb wildlife and humans.

- **Threatened, Endangered, and Candidate Species**—As discussed in more detail in the previous sections, there may be short-term impacts on fish and wildlife species as a result of construction activities. In accordance with state and federal permit conditions, in-water work will only take place in the absence of endangered or threatened species and during regulated time periods when no major fish runs occur. Impacts on mobile species (*e.g.*, birds, mammals) will be minor, consisting of short-term displacement. Overall, the construction of the fish habitat projects as part of the Preferred Alternative will benefit fish and wildlife species dependent on these types of habitat.

- **Water and Sediment Quality**—Although implementation of the projects should result in no violations of water quality standards, there may be temporary increases in sedimentation and turbidity related to the beach restoration projects. Best management practices along with other avoidance and mitigation measures required by the regulatory agencies will be employed to minimize any water quality and sedimentation impacts.

- **Visual**—There may be temporary visual impacts during implementation of the beach restoration projects. Once the Trustees complete those projects, the visual impacts will cease. Beneficial aesthetic impacts would then extend to the users of these beaches.

- **Public Access/Recreation**—Public access may be temporarily affected during construction activities. Because implementation time for these projects will be relatively short, the impact will be short-lived.

- **Archaeological and Cultural Resources**—Archaeological sites are located in the Fidalgo Bay area. The projects will not adversely affect any known archaeological sites or sites of cultural significance. The Trustees or project managers will consult with the Tribes and the Office of Archaeology and Historic Preservation to ensure that any sites would remain undisturbed by the proposed restoration actions.

- **Other (*e.g.*, economic, historical, land use, transportation)**—No significant adverse effects are anticipated to soil, geologic conditions, energy consumption, wetlands, or floodplains. The restoration projects will have no adverse social or economic impacts on neighborhoods or communities.

Cumulative Impacts—Since the Trustees designed the proposed projects primarily to improve recovery of injured natural resources and services; the cumulative environmental consequences will be beneficial. These cumulative impacts include restoration of the injured ecosystem by increasing fish, invertebrate and wildlife habitats and providing additional public lands. Certain projects may also provide educational opportunities. The Trustees anticipate that monitoring of projects funded under this final RP/EA will confirm that cumulative impacts will be beneficial rather than adverse. Any unanticipated cumulative adverse effect on an area or other area program, plan, or regulatory regime from a project identified prior to implementation of a project will result in reconsideration of the project by the Trustees.

6.0 COORDINATION WITH OTHER PROGRAMS, PLANS AND REGULATORY AUTHORITIES

6.1 Overview

Two major federal laws guiding the restoration of the injured natural resources and services from the oil spill are OPA and NEPA. OPA and its regulations provide the basic framework for natural resource damage assessment and restoration. NEPA sets forth a specific process of impact analysis and public review. In addition, the Trustees must comply with other applicable laws, regulations and policies at the federal, state and local levels. The potentially relevant laws, regulations and policies are set forth below.

In addition to laws and regulations, the Trustees must consider relevant environment or economic programs or plans that are ongoing or planned in or near the affected environment. The Trustees must ensure that their proposed restoration activities neither impede nor duplicate such programs or plans. By coordinating restoration with other relevant programs and plans, the Trustees can enhance the overall effort to improve the environment.

6.2 Key Statutes, Regulations and Policies

Oil Pollution Act of 1990 (OPA), 33 U.S.C. 2701, et seq.; 15 CFR Part 990

OPA establishes a liability regime for oil spills that injure or are likely to injure natural resources and/or the services that those resources provide to the ecosystem or humans. Federal and state agencies and Indian tribes act as trustees on behalf of the public to assess the injuries, scale restoration to compensate for those injuries and implement restoration. Section 1006(e)(1) of OPA (33 U.S.C. 2706 (e)(1)) requires the President, acting through the Under Secretary of Commerce for Oceans and Atmosphere, (NOAA) to promulgate regulations for the assessment of natural resource damages resulting from a discharge or substantial threat of a discharge of oil. Assessments are intended to provide the basis for restoring, replacing, rehabilitating, and acquiring the equivalent of injured natural resources and services.

National Environmental Policy Act (NEPA), 42 U.S.C. 4321, et seq. 40 CFR Parts 1500-1508

Congress enacted NEPA in 1969 to establish a national policy for the protection of the environment. NEPA applies to federal agency actions that affect the human environment. NEPA established the Council on Environmental Quality (CEQ) to advise the President and to carry out certain other responsibilities relating to implementation of NEPA by federal agencies. Pursuant to Presidential Executive Order, federal agencies are obligated to comply with the NEPA regulations adopted by the CEQ. These regulations outline the responsibilities of federal agencies under NEPA and provide specific procedures for preparing environmental documentation to comply with NEPA. NEPA requires that an Environmental Assessment (EA) be prepared in order to determine whether the proposed restoration actions will have a significant effect on the quality of the human environment.

Generally, when it is uncertain whether an action will have a significant effect, federal agencies will begin the NEPA planning process by preparing an EA. The EA may undergo a public review and comment period. Federal agencies may then review the comments and make a determination. Depending on whether an impact is considered significant, an environmental impact statement (EIS) or a finding of no significance (FONSI) will be issued.

The Trustees have integrated this restoration plan with the NEPA process to comply with those requirements. This integrated process allows the Trustees to meet the public involvement requirements of OPA and NEPA concurrently. This DRP/EA is intended to accomplish partial NEPA compliance by:

- Summarizing the current environmental setting;
- Describing the purpose and need for restoration action;
- Identifying alternative actions, assessing the preferred actions' environmental consequences and;
- Summarizing opportunities for public participation in the decision process.

Project-specific NEPA documents may need to be prepared for those proposed restoration projects not already analyzed in an environment assessment or environmental impact statement.

State Environmental Policy Act (SEPA), RCW 43.21C

The State Environmental Policy Act (SEPA), chapter 43.21C RCW, requires state agencies and local governments to analyze proposed projects and plans for potentially significant impacts to the environment. An environmental impact statement (EIS) must be prepared for all proposals with probable significant adverse impacts on the quality of the environment. Regulations implementing SEPA and providing guidance for state and local governments have been adopted (CH. 197-11 WAC). Specific resource areas that must be considered under SEPA include earth, air, water, vegetation, wildlife, public health, and shorelines. The SEPA review process may be initiated at the local government level through the development application review procedures. Local regulations identifying and protecting critical or sensitive environmental areas help ensure compliance with SEPA regulations. State agencies also prepare documents in response to proposals for state agency action.

Park System Resource Protection Act, 16 U.S.C. 19jj

Public Law 101-337, Park System Resource Protection Act (16 U.S.C.19jj), requires the Secretary of the Interior to assess and monitor injuries to park system resources. The Act specifically allows the Secretary of the Interior to recover response costs and damages from the responsible party causing the destruction, loss of or injury to park system resources. This Act provides that any monies recovered by the NPS may be used to reimburse the costs of response and damage assessment and to restore, replace or acquire the equivalent of the injured resources.

Clean Water Act (CWA) (Federal Water Pollution Control Act), 33 U.S.C. 1251, *et seq.*

The CWA is the principal law governing pollution control and water quality of the nation's waterways. Section 404 of the law authorizes a permit program for the disposal of dredged or fill material into navigable waters. The Army Corps of Engineers (Corps) administers the program. In general, restoration projects that move significant amounts of material into or out of waters or wetlands -- for example, hydrologic restoration of marshes -- require 404 permits. Under section 401 of the CWA, restoration projects that involve discharge or fill to wetlands or navigable waters must obtain certification of compliance with state water quality standards. Generally, restoration projects with minor wetlands impacts (*i.e.*, a project covered by a Corps general permit) do not require 401certification, while projects with potentially large or cumulative impacts do.

Coastal Zone Management Act (CZMA), 16 U.S.C. 1451, *et seq.* 15 CFR Part 923

The goal of the CZMA is to preserve, protect, develop and, where possible, restore and enhance the nation's coastal resources. The federal government provides grants to states with federally approved coastal management programs. The State of Washington has a federally-approved program. Section 1456 of the CZMA requires that any federal action inside or outside of the coastal zone that affects any land or water use or natural resources of the coastal zone shall be consistent, to the maximum extent practicable, with the enforceable policies of approved State management programs. It states that no federal license or permit may be granted without giving the State the opportunity to concur that the project is consistent with the State's coastal policies. The regulations outline the consistency procedures. To comply with the CZMA, the Trustees intend to seek the concurrence of the State of Washington that their preferred projects are consistent to the maximum extent practicable with the enforceable policies of the state coastal program.

Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA), 42 U.S.C. §§ 9601, *et seq.*

CERCLA provides the basic legal framework for clean up and restoration of the nation's hazardous substances sites. Generally, parties responsible for contamination of sites and the current owners or operators of contaminated sites are liable for the cost of clean up and restoration. CERCLA establishes a hazard ranking system for assessing the nation's contaminated sites with the most contaminated sites being placed on the National Priorities List (NPL).

To the extent that restoration projects are proposed for areas containing hazardous substances, the Trustees will avoid exacerbating any potential risk posed by such substances and will undertake no actions that might constitute “arrangement for disposal of hazardous substances.” At this time, the Trustees are not aware of any potential hazardous substance problem associated with the areas where proposed restoration projects will occur.

Endangered Species Act (ESA), 16 U.S.C. 1531, *et seq.*

The ESA directs all federal agencies to conserve endangered and threatened species and their habitats and encourages such agencies to utilize their authorities to further these purposes.

Under the Act, the DOC through NOAA and the DOI through the FWS publish lists of endangered and threatened species. Section 7 of the Act requires that federal agencies consult with these departments to minimize the effects of federal actions on endangered and threatened species. Prior to implementation of any project potentially affecting an endangered or threatened species, the Trustees would conduct Section 7 consultations.

Magnuson-Stevens Fishery Conservation and Management Act, 16 USC 1801 *et seq*.
The Magnuson-Stevens Fishery Conservation and Management Act as amended and reauthorized by the Sustainable Fisheries Act (Public Law 104-297) established a program to promote the protection of essential fish habitat (EFH) in the review of projects conducted under federal permits, licenses, or other authorities that affect or have the potential to affect such habitat. After EFH has been described and identified in fishery management plans by the regional fishery management councils, federal agencies are obligated to consult with the Secretary of Commerce with respect to any action authorized, funded, or undertaken, or proposed to be authorized, funded, or undertaken, by such agency that may adversely affect any EFH.

The Trustees believe that the proposed restoration projects will have no adverse effect on the EFH units defined in the Pacific Groundfish Fishery Management Plan. The projects will promote the protection of fish resources in EFH areas. Prior to implementation of any restoration projects that may potentially create a potential adverse impact to EFH, the Trustees will consult with the National Marine Fisheries Service.

Endangered Species Act and Essential Fish Habitat
Consultation with the U.S. Fish and Wildlife Service and the National Marine Fisheries Service under the Endangered Species Act and the Magnuson-Stevens Fishery Conservation and Management Act will occur prior to any on-the-ground projects that may adversely affect listed species or habitats.

Fish and Wildlife Coordination Act (FWCA), 16 U.S.C. 661, *et seq.*
The FWCA requires that federal agencies consult with the U.S. Fish and Wildlife Service, the National Marine Fisheries Service and State wildlife agencies for activities that affect, control or modify waters of any stream or bodies of water, in order to minimize the adverse impacts of such actions on fish and wildlife resources and habitat. This consultation is generally incorporated into the process of complying with Section 404 of the Clean Water Act, NEPA or other federal permit, license or review requirements.

Rivers and Harbors Act, 33 U.S.C. 401, *et seq.*
The development and use of the nation's navigable waterways are regulated through the Rivers and Harbors Act. Section 10 of the Act prohibits unauthorized obstruction or alteration of navigable waters and vests the Corps with authority to regulate discharges of fill and other materials into such waters. Restoration actions that require Section 404 Clean Water Act permits are likely also to require permits under Section 10 of the Rivers and Harbors Act. However, a

single permit usually serves for both. Therefore, the Trustees can ensure compliance with the Rivers and Harbors Act through the same mechanism.

Executive Order 12898 - Environmental Justice

On February 11, 1994, President Clinton issued Executive Order 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations. This Executive Order requires each federal agency to identify and address, as appropriate, disproportionately high and adverse human health or environmental effects of its programs, policies and activities on minority and low-income populations. EPA and the Council on Environmental Quality (CEQ) have emphasized the importance of incorporating environmental justice review in the analyses conducted by federal agencies under NEPA and of developing mitigation measures that avoid disproportionate environmental effects on minority and low-income populations. The Trustees have concluded that there are no low income or ethnic minority communities that would be adversely affected by the proposed restoration activities.

Executive Order 11988 -- Construction in Flood plains

This 1977 Executive Order directs federal agencies to avoid to the extent possible the long and short-term adverse impacts associated with the occupancy and modification of flood plains and to avoid direct or indirect support of development in flood plains wherever there is a practicable alternative. Each agency is responsible for evaluating the potential effects of any action it may take in a flood plain.

Before taking an action, the federal agency must determine whether the proposed action will occur in a flood plain. For major federal actions significantly affecting the quality of the human environment, the evaluation will be included in the agency's NEPA compliance document(s). The agency must consider alternatives to avoid adverse effects and incompatible development in flood plains. If the only practicable alternative requires placing a site in a flood plain, the agency must: 1) Design or modify the action to minimize potential harm; and 2) prepare and circulate a notice containing an explanation of why the action is proposed to be located in the flood plain.

Model Toxics Control Act (MTCA), Ch. 70.105D RCW (1989) and Ch. 173-340 WAC (1992)

MTCA, Washington's toxic cleanup law mandates that site cleanups protect the state's citizens and the environment. The regulations established cleanup standards, which provide a uniform, statewide approach to cleanup that can be applied on a site-by-site basis; and requirements for cleanup actions, which involve evaluating the best methodology to achieve cleanup standards at a site.

6.3 Other Potentially Applicable Laws and Regulations

This section lists other laws that potentially affect any proposed restoration activities. The statutes or their implementing regulations may require permits from federal or state permitting authorities.

Archaeological Resources Protection Act, 16 U.S.C. 470, *et seq.*
Clean Air Act, 42 U.S.C. 7401, *et seq.*
Marine Mammal Protection Act, 16 U.S.C. 1361, *et seq.*
Migratory Bird Treaty Act, 16 U.S.C. 703, *et seq.*
National Historic Preservation Act, 16 U.S.C. 470, *et seq.*
National Park Act of August 19, 1916 (Organic Act), 16 U.S.C. 1, *et seq.*
Olympic Coast National Marine Sanctuary, 15 CFR Part 922

7.0 RESPONSE TO COMMENTS

Summary of public comments on the Draft Restoration Plan/Environmental Assessment

This section will be completed after a 30-day public review period.

8.0 PREPARERS, AGENCIES AND PERSONS CONSULTED

8.1 Texaco Restoration Committee Members

The following Trustee representatives on the Texaco Restoration Committee were involved with the preparation of this document and with the selection of the preferred alternatives.

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Brian Williams (WDFW)

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Williams, B.W., S. Wyllie-Echeverria, and A. Bailey. 2003. Historic Nearshore Habitat Change Analysis in Fidalgo Bay and Guemes Channel. Report to the natural resource trustees for the 1991and 1992 Texaco Oil Spills. January 2003. 53 pp.

10.0 APPENDICES

10.1 List of Acronyms

CEQ - Council on Environmental Quality
CERCLA - Comprehensive Environmental Response, Compensation, and Liability Act
CFR- Code of Federal Regulations
DOC - Department of Commerce
DOI - Department of the Interior
DOM - dissolved organic matter
DARP – Damage Assessment and Restoration Plan
EA - Environmental Assessment
EIS - Environmental Impact Statement
ESA - Endangered Species Act
EFH - Essential Fish Habitat
FWS- U.S. Fish and Wildlife Service
HEA – Habitat Equivalency Analysis
MOA - Memorandum of Agreement
NPS - National Park Service
NEPA - National Environmental Policy Act
NMFS - National Marine Fisheries Service
NOAA- National Oceanic and Atmospheric Administration
NRDA - Natural Resource Damage Assessment
NWR - National Wildlife Refuge
OPA- Oil Pollution Act of 1990
Plan - Restoration Plan
RCW – Revised Code of Washington
RDA – Resource Damage Assessment
RP/EA - Restoration Plan/Environmental Assessment
RFP - Request for Proposals
RP - Restoration Plan
SEPA - Washington State Environmental Policy Act
SLT – Skagit Land Trust
SOAL - State owned aquatic lands
TRC - Texaco Restoration Committee
TRF – Texaco Restoration Fund
USFWS – U.S. Fish and Wildlife Service
WAC - Washington Administrative Code
WDF - Washington Department of Fisheries
WDFW - Washington Department of Fish and Wildlife
WDNR - Washington Department of Natural Resources
WDOE- Washington State Department of Ecology
WDW - Washington Department of Wildlife
WSP - Washington State Parks

10.2 Tasks, deliverables and estimated time line for Project 5.2.1

Protection of Critical Forage Fish Spawning Habitats In Fidalgo Bay.
Below is a draft list of specific tasks, work products, deliverables and estimated time line likely to be assigned to Skagit Land Trust (SLT) for acquisition of tidelands in Fidalgo Bay. Final work plans, with details regarding scope of work, schedules, budgets and other applicable information, will be prepared for review and approval by the Trustees and the project manager and included in the final contract before project implementation.

Tasks:

- Conduct inventory of tideland parcels in private ownership within the project area to determine which parcels contain land suitable for forage fish spawning and other critical fish and wildlife nursery areas.
- Set general priorities for land acquisition.
- Contact owners of land identified in inventory about possibility of sale.
- Identify willing sellers.
- Evaluate available parcels.
- Consult with the Texaco Restoration Committee or the Executive Director for the TRC to determine acquisition priorities.
- Identify acquisition partnership opportunities with other funding sources.
- Negotiate with landowners and purchase parcels ranked the highest in acquisition priorities.
- Complete all necessary transaction work (appraisals, title searches, environmental assessments, etc) related to acquiring the land or obtaining landowner agreements for conservation easements.
- Transfer parcels to public agency (DNR) with conservation easement held by SLT. Complete all necessary transaction work required.
- Monitor and enforce compliance with easement restrictions in perpetuity.

Deliverables:

- Periodic reports and updates to TRC on the status and availability of lands for purchase in project area.
- Transfer purchased parcels to Public agency with conservation easements.
- Final Report to TRC.

Estimated timeline:

- Funds available by Fall 2003.
- Completion of land acquisitions or conservation easements and transfers by December 2005.

10.3 Tasks, deliverables and estimated time line for Project 5.2.2

Surf Smelt and Sand Lance Spawning Habitat Enhancement Projects in Fidalgo Bay
Below is a draft list of specific tasks, work products, deliverables and estimated time line likely to be assigned and completed by the contractor for the intertidal beach restoration project(s) in Fidalgo Bay. Final work plans, with details regarding scope of work, schedules, budgets and other applicable information, will be prepared for review and approval by the Trustees and the project manager and included in the final contract before project implementation.

Tasks

- Select site(s) based on an analysis of coastal processes and consultation with biologists.
- Conduct coastal processes assessment and produce report by geologist
- Produce report indicating site(s) selected and providing detailed project design for TRC approval.
- Conduct biological evaluation and assessment and historical review.
- Provide written BA/BE.
- Obtain all necessary permits to carry out project.
- In coordination with Skagit Land Trust, obtain conservation easements or land agreements needed to do projects from private property owners prior to construction.
- Conduct construction work as indicated in detailed project design. May include:
  - Remove debris, rip-rap or other man-made structures from beach.
  - Replenish beach with appropriate sized sand gravel to support forage fish spawning.
  - Placement of large woody debris to beach as needed.
  - Plant appropriate native vegetation in the selected riparian area above restored beach.
- Conduct post project monitoring of beach geology, presence of forage fish, etc.
- Conduct post project maintenance for 5 years and report on an annual basis to TRC summarizing maintenance work.
- Post signage at project site as required by local, state, and federal law or as requested by the TRC. Conduct public outreach as requested by TRC and coordinate compliance with public notice and comment requirements of local, state and federal law.

Deliverables

- Written report on results of Coastal processes assessment.
- Written report on Biological Evaluation/Biological Assessment
- Copies of project design.
- Completed restoration project.
- Annual reports on results of biological monitoring and project maintenance.
- Final project report to TRC.

Estimated Timeline.

- Funds available in Fall 2003.
- Project assessment, design and permitting – 2003.
- Project construction completed – 2004-2005
- Monitoring and maintenance –2005-2011

10.4. Projects considered for Alternatives but Eliminated

List of projects considered by the TRC during the restoration planning process but eliminated from consideration in proposed action. Some projects were funded by other sources prior to development of this plan. Others were rejected because no specific proposals were submitted or they did not meet one or more of the selection and evaluation criteria (Section 4.2).

Project	Project Description	Comments
Assessments and Studies		
Literature Review	Conduct a literature review and compile existing chemical, biological, and baseline data in the North Puget Sound area and on forage fish in general.	Literature reviews conducted by several other planning efforts in the area (e.g. Cherry Point Risk Assessment, Port of Anacortes) were used in lieu of funding an additional review.
Railroad Trestle Feasibility Study	Fund study to assess feasibility and costs of modifying the railroad trestle to improve flows into the southern part of Fidalgo Bay.	Conceptual proposal was withdrawn from consideration by DNR.
Herring Stock Genetics	Conduct genetic tests on Puget Sound herring stocks using mitochondrial DNA or nuclear DNA methods to determine if there are genetic differences between them.	A study was funded and completed by WDFW prior to completion of this plan.
Tissue Contamination	Sample herring adults and spawned eggs to assess presence of chemical contaminants.	Studies to assess contamination in herring adults and spawned eggs were funded by WDFW Fish Program, PSAMP, and WDFW Oil Spill Team.
Surf Smelt stock genetics	Conduct genetic tests on surf smelt from different spawning areas in Northern Puget Sound using mitochondrial DNA or nuclear DNA methods to determine if there are genetic differences between them.	A proposal was submitted but was withdrawn from consideration by the project proponent.
Sediment studies	Assess sediment contamination in the Fidalgo, March Point and Padilla Bay	Several studies have been conducted in the area and were funded by DNR, PSAMP, and WDOE.
Water quality	Assess water quality in the bay	Water quality is being evaluated under several othe existing monitoring programs. The committee did not feel that additional studies were warranted with these funds.
Baseline Habitat Studies	Fund specific baseline studies of habitats in the Fidalgo Bay Area such as shoreline habitat classification and inventory, eelgrass inventory and assessment of biota using area.	A detailed habitat delineation of Skagit County intertidal habitats was published by DNR in 1996. People for Puget Sound conducted an inventory of the March Point Area in 2000.
Reproductive success measures for forage fish (i.e. *in-situ* herring embryo survival)	Conduct in-situ bioassays using herring eggs to evaluate reproductive success (e.g. egg mortality, hatching success, percentage of abnormal larvae, etc) in key spawning areas in Puget Sound	No specific studies proposed. DNR funded a series of caged mussel studies and *in-situ* assessments in area as a part of the Cherry Point Risk Assessment.

Effects of Shoreline armoring and beach nourishment on surf smelt and sand lance spawning	Fund NWIFC to monitor surf smelt and sand lance use on Lummi Shore Road Beach revetment/shoreline protection site.	Project proposed did not meet criteria. Proposed monitoring and report was required under an existing mitigation agreement.
Forage fish Management Plan	Fund WDFW to develop a forage fish management plan for Puget Sound Stocks	A Forage Fish Management Plan was funded and completed by WDFW prior to development of this restoration plan.
Acquisition and Aquatic Land Stewardship		
Bay Wide Management Plan	Use settlement money to fund development of a Bay Wide management plan.	The Trustees rejected this proposal because it was primarily focused on development of a management plan for the area. While the Trustee council recognized the importance of management plans for the area, it felt that the TRF funds should be spent on actual forage fish protection and restoration projects.
Fund management of DNR Fidalgo Bay Aquatic Reserve.	Fund DNR to manage the Fidalgo Bay Aquatic reserve and to protect critical forage fish spawning and nursery areas.	Withdrawn by DNR. No detailed funding request was proposed.
DNR Reserve Monitoring and Maintenance Endowment	Provide funding support to DNR for monitoring and maintenance of the Fidalgo Bay State Aquatic Reserve	TRC considered funding a portion of this project but the conceptual proposal was withdrawn by DNR. No specific proposal was submitted for consideration.
Modify or Remove Railroad Trestle	Fund removal of all or parts of the railroad trestle in the southern portion of the bay to improve water flows and habitats.	The Trustees considered funding a portion of a feasibility study but no specific proposal was submitted for consideration.

Restoration/Rehabilitation		
Eelgrass transplantation to enhance spawning habitat	Conduct eelgrass transplantation study to evaluate feasibility of large scale eelgrass transplanting in degraded areas.	The TRC was interested in this project but had concerns regarding the technical feasibility and the overall scale of the project. The proposed pilot study was too costly given the limited funds in the TRF. The Committee requested that the project proponents produce a scaled back version of the study or secure additional funding from another sources. The project proponents were unable to do either.
March Point Smelt Beach Restoration Project	Fund acquisition of a privately owned beach on March Point. Restore degraded beach with gravel to promote surf smelt spawning.	This project was originally selected by the TRC as a preferred alternative. However, at this time the property owners are not likely to sell the property or to grant an easement to allow beach nourishment on property. The TRC may reconsider this project as a part of Preferred Project 5.2.2 if an easement can be obtained.
Enhance sediment cleanup/remediation efforts	Fund removal of contaminated sediments in the bay. (leverage better management)	Cleanup and remediation efforts are being negotiated and conducted through existing CERCLA and/or MTCA efforts. Did not meet evaluation criteria.
Seafarers' Memorial Park Beach and Eelgrass Restoration	Restore eelgrass (*Zostera marina*) at Seafarers' Memorial Park in western Fidalgo Bay to increase spawning habitat for Pacific herring and provide additional habitat for near shore macro-fauna and juvenile fish.	The project proponent withdrew this project proposal from consideration because of site contaminant issues.
Remove Concrete Boat Launch on March Point	Remove concrete boat ramp on northeast portion of March Point to improve habitat and natural long shore transport of sediments.	Property owners use this ramp and are not willing to consider removing it or modifying it at this time. No proposal submitted.

11.0 FINDING OF NO SIGNIFICANT IMPACT

11.1 National Environmental Policy Act (NEPA)

To be completed after public review and comment.

11.2 Washington State Environmental Policy Act (SEPA)

To be completed after public review and comment.

12.0 FIGURES AND PHOTOGRAPHS

Image Credits

Figure 1. The Fidalgo Bay restoration planning area. Dan Doty, WDFW

Figures 2 –13. Selected photographs from the February 22, 1991 oil spill into Fidalgo Bay. WA Dept of Fisheries Spill Team (Thom Hooper and others)

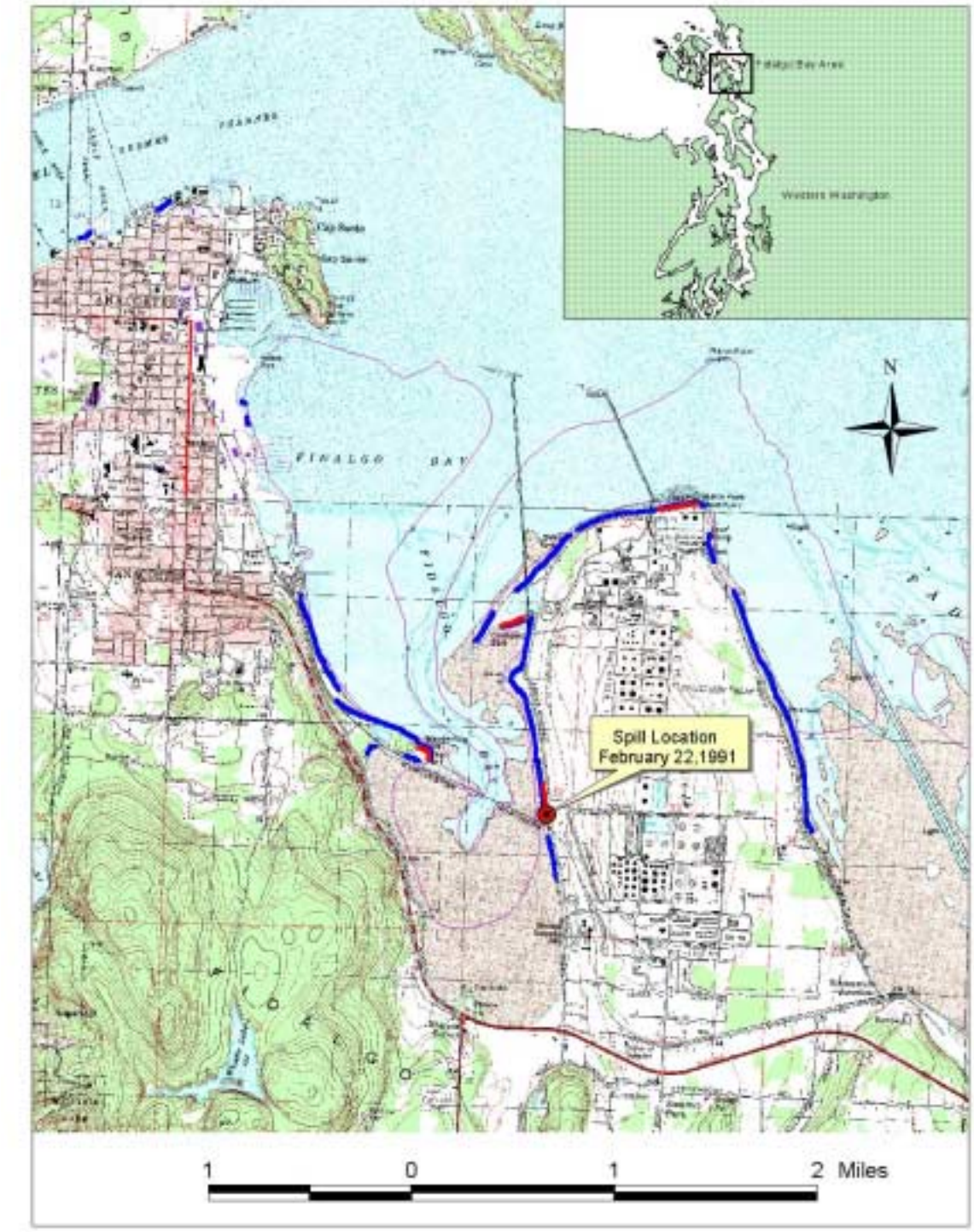

Figure 1. The Fidalgo Bay restoration planning area for the Texaco Oil spills. Shown is the location of February 22, 1991 spill, the largest of the four spills. The distribution of intertidal smelt spawning habitat is shown in bold blue and sand lance spawning habitat in bold red. Pacific herring spawning occurs within the area outlined by the purple line.

Figure 2. Containment booms and an oil skimmer attempt to contain and collect crude oil near the spill source in Fidalgo bay following the February 22, 1991 spill. Most of the oil entered the bay from a drainage culvert north of the railroad trestle (arrow).

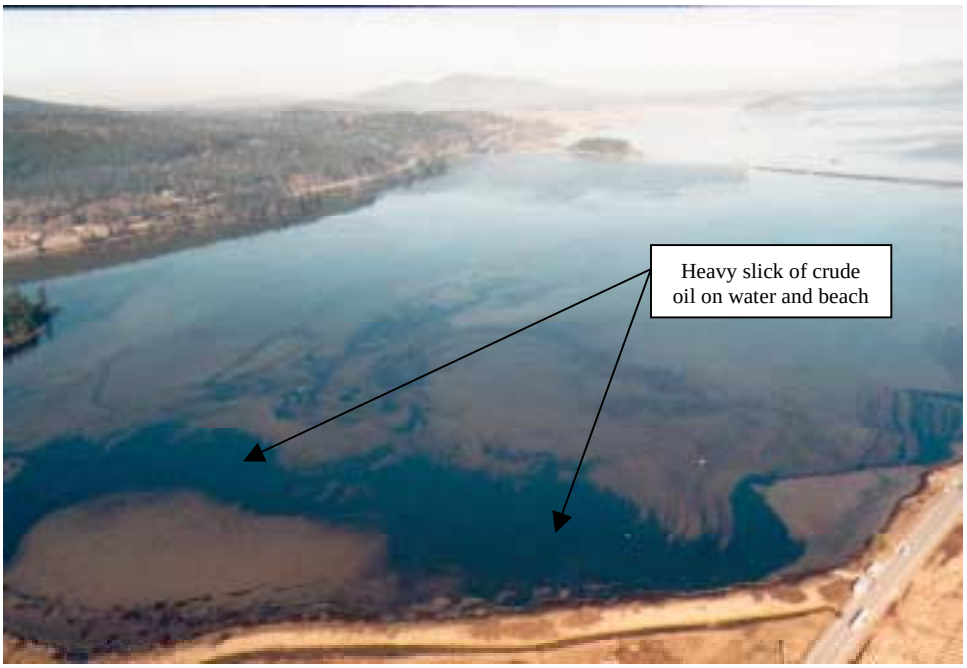

Figure 3. Aerial photograph showing the distribution of crude oil in southern Fidalgo Bay following the February 22, 1991 oil spill. Dark patches and streamers of oil are visible throughout much of the southern portion of the bay. Salt marshes and intertidal beaches were heavily oiled in this part of the bay (lower portion of the photo).

Figure 4. Oil slick in southern Fidalgo Bay on February 22, 1991. March Point and the Texaco Oil Refinery can be seen in the background. Dark patches and streamers of crude oil are visible throughout much of the southern portion of the bay. Salt marshes and intertidal beaches were heavily oiled in this part of the bay (lower right portion of the photo).

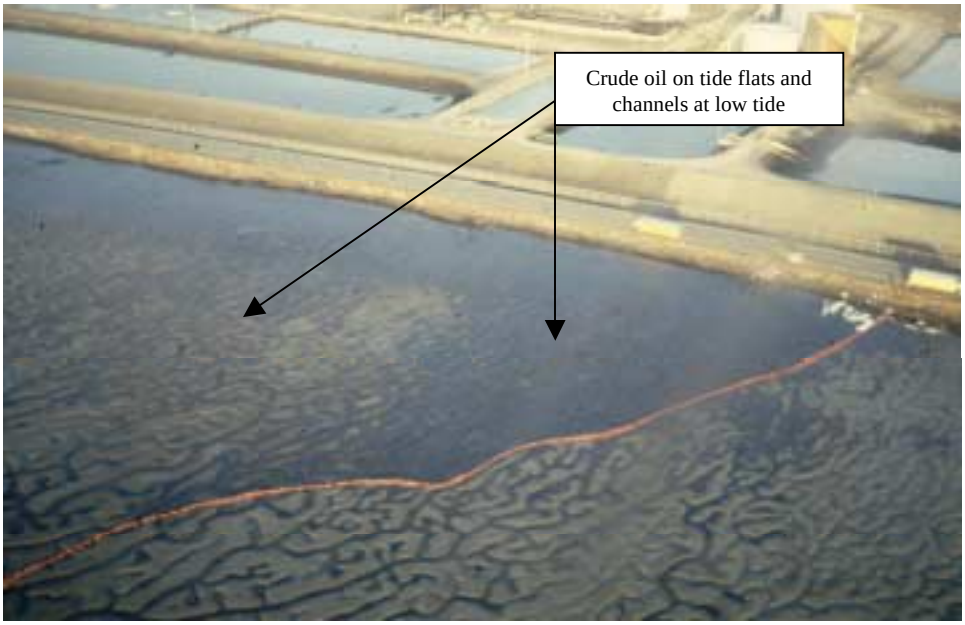

Figure 5. Oil on tide flats and in drainage channels during low tide in southern Fidalgo Bay following the February 22, 1991 oil spill. Oil concentrated on the tide flats and flowed into shallow sub-tidal habitats via drainage channels during low tides.

Figure 6. Most of the crude oil entered the bay from a drainage ditch at the north side of the trestle. Here dark patches of crude oil covers the intertidal beaches and tide flats near the entry point.

Figure 7. Oil on upper intertidal beaches of March Point. Beach cleanup crews are working in the background. Portions of this beach are spawning areas for surf smelt.

Figure 8. Oiled shoreline on March Point following the Feb 22, 1991 spill. The oiled beaches in this photograph are smelt spawning beaches.

Figure 9. Shoreline assessment teams surveying oiled beaches on March Point following the February 22, 1991 spill. The oiled beaches in this photograph are used by surf smelt for spawning.

Figure 10. Oiled intertidal mud and sand flats in south Fidalgo Bay during low tide following the February 22, 1991 spill. The arrows indicate the outer edge of visible oil on the exposed tide flats. Moderate to heavy oil was present on the tide flats from the arrows to the beach in this area of the bay.

Figure 11. Oiled intertidal shoreline in Fidalgo Bay.

Figure 12. Oiled salt marsh habitat along southern shoreline of Fidalgo Bay. Strings of oil absorbent "pom-poms" have been placed along the shore to collect oil.

Figure 13. Oiled mudflats and salt marsh at Crandall Spit in Fidalgo Bay.